

family members been concerned about your drinking?" "Has drinking ever caused problems in your life?" A hidden or defensive alcoholic often begins to disclose a problem at this stage.

In the early diagnosis of alcoholism, the findings on physical examination may not be remarkable, but abnormalities are often present on laboratory testing. The following blood alcohol levels are diagnostic: (1) more than 100 mg per dl in a patient coming for a general examination; (2) more than 150 mg per dl without signs of intoxication and (3) more than 300 mg per dl at any time. A common abnormality is an elevated serum gamma-glutamyl transpeptidase (GGT) level two to four times normal. Less common is an elevated serum glutamic oxaloacetic transaminase (SGOT) value which will return to normal before the GGT level. Macrocytosis without anemia can develop during a long period of heavy alcohol drinking and requires months to resolve. Elevations can also be observed of triglycerides, serum bilirubin, alkaline phosphatase or uric acid. If a physician suspects that a patient is alcoholic, all these tests should probably be done. If results of *one or more* are abnormal, the patient can be confronted with the fact and told that the abnormality may be related to alcohol intake. Laboratory test abnormalities cannot be relied upon for diagnosis because there is a high rate of false negative determinations in alcoholic persons. The physician should have a reliable set of criteria for making the diagnosis.

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## Jogging and Abnormal Laboratory Tests

VIGOROUS EXERCISE, such as jogging, can produce significant abnormalities in laboratory tests. Slight elevations in blood urea nitrogen, serum glutamic oxaloacetic transaminase, creatinine phosphokinase and lactic dehydrogenase have been found in routine physical examinations of persons who jog middle and longer distances (10 km or more). Gross hematuria may be observed in joggers and, more often, in marathon runners. Microscopic hematuria may be evident for up to one or two

days. Cylindruria (3 to 5 casts per low power field) and proteinuria (2+ to 3+) has been observed in subjects within one hour after running a mile and a significant amount may still be present three to six hours after running. Usually these values return to normal after 24 hours.

Given the popularity of physical fitness activities and jogging today, a physician may need to be familiar with sports medicine and laboratory values for those who exercise vigorously. This knowledge may be essential in making sound clinical determinations about further clinical or laboratory studies.

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## Screening for Neonatal Hypothyroidism

CONGENITAL HYPOTHYROIDISM lacks easily recognizable clinical features and is rarely suspected in the first few months of life. As a consequence, irreversible central nervous system damage may occur before the condition is recognized. Because treatment with thyroid hormone may prevent this damage if given before three months of age, early recognition is essential. Large scale population studies in Canada and England have shown an incidence of congenital hypothyroidism of approximately 1 per 5,000 live births.

Development of a reproducible and accurate technique for the determination of thyroxine ( $T_4$ ) from a spot of dried blood on filter paper, similar to the technique used for phenylketonuria (PKU) screening, has made the test readily available for use in all newborn infants. The specimen is stable and the filter paper may be readily mailed. The testing is not time-dependent on ingestion of food as is PKU testing. The urgency is considerably less than for the PKU testing because immediate treatment is not as essential.

At present the procedure in most laboratories is as follows: The filter paper blood spot specimen is obtained from the newborn infant in the nursery at the same time and on the same filter paper as the PKU specimen. Alternatively, the test may be done on a liquid sample of cord blood. The specimen is tested for  $T_4$  and results less than normal for the laboratory are consid-

ered as indicating possible hypothyroidism. The attending physician is immediately notified and a sample of serum for a thyroid stimulating hormone (TSH) study is requested. If the TSH level is elevated, a presumptive diagnosis of hypothyroidism is made. In hypothyroid infants a complete study is necessary to determine if the condition is transient or if it is primary hypothyroidism, pituitary or hypothalamic hypothyroidism, a deficiency of thyroxine binding globulin (TBG) or end-organ defect.

There is little question that identification of hypothyroidism in infants is of importance to state and federal governments because of the enormous costs of lifetime care of persons in whom the condition has not been identified. A program of required T<sub>4</sub> testing of newborn infants appears indicated by the significant incidence of this disorder. There is, however, considerable question about the advisability of establishing large government operated laboratories for diagnosis and counseling centers for care. This incursion into private medical practice does not seem needed or justified.

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### Pap Smears—Lest We Forget

RECENT CRITICISM of cost effectiveness of routine Papanicolaou (Pap) tests has perhaps dampened the enthusiasm of the public, and in some cases physicians, about the need for routine gynecologic Pap tests. There may be value, therefore, in reviewing the history of this simple procedure and its effect on carcinoma of the uterine cervix.

From 1930 to 1974 age-adjusted cancer death rates for females indicated a drop in deaths from cancer of the uterus from first to fourth position, a decrease from 27 per 100,000 females to 8 per 100,000 females. In well-documented studies there has been a pronounced decrease in the cases of invasive cancer. In a 1956 study, 41 percent of the lesions detected were invasive. A 1979 study showed a 9 percent incidence of invasive lesions. From these data it becomes clear that tumors are being detected much earlier and in clinical settings where appropriate treatment for cure is possible. Routine Pap tests undoubtedly contribute to this favorable trend.

On the other hand, mortality data presented in a Minnesota study indicated 66 deaths in 1978 from cervical cancer (Cervical cancer deaths—Minnesota residents 1959-1978. Minneapolis, Minnesota Department of Health Center for Health Statistics, unpublished data). In spite of the widespread use of routine Pap tests, cervical cancer is still very much with us. The factors involved contributing to the continued incidence of death resulting from cancer of the uterine cervix are complex. Included are not carrying out Pap tests or pelvic examinations, inadequate or inappropriate treatment and inadequate follow-up. In 75 percent of the cases, patients are apparently responsible for inadequate care either by refusing pelvic examination or by not visiting a physician for routine annual examination or follow-up examination. In the other 25 percent of the cases physician responsibility was indicated in that pelvic examinations were not done, Pap tests were not carried out, or the reported histologic or cytologic findings were misinterpreted. The need for continued emphasis on physical examination, Pap tests and careful continued follow-up remains clear and cannot be overemphasized.

In recent years, cytology has become more of a diagnostic rather than a screening procedure, and the use of colposcopy in obtaining cervical biopsy specimens when there are abnormal Pap test results has increased the accuracy to approximately 99 percent. There is no excuse which can be justified by lack of *cost effectiveness* to forgive one undetected cancer of the uterine cervix.

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### Recent Advances in Perinatal Clinical Chemistry

ONE OF THE most important decisions an obstetrician must make is whether or not to let nature take its course and have a baby delivered by natural labor or to preempt nature by inducing delivery. That decision is usually made on the basis of the maternal condition, the health of the fetus and the maturity of the fetus. Recent advances in clinical chemistry have contributed to